



Course Specifications

Course Title:	General Physics 1
Course Code:	PHY1101
Program:	Physics
Department:	Physics
College:	Applied Sciences
Institution:	Umm Al-Qura University

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A. Course Identification

1. Credit hours: 4 (3+1)
2. Course type
a. University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: Level 1 st / 1 st year
4. Pre-requisites for this course (if any):
5. Co-requisites for this course (if any):

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	30
3	Tutorial	
4	Others	
	Total	60

B. Course Objectives and Learning Outcomes

1. Course Description <p>The course will cover the principles of general physics, such as measurements, vectors, Motion in one dimension, Newton's laws, work and energy. The course will also provide a conceptual background of experimental physics sufficient to enable students to take courses that are more advanced in related fields.</p>
2. Course Main Objective <p>After completing this course student should be able to:</p> <ol style="list-style-type: none">1. Define the concepts of the measurements, length, time, and weight.2. Differentiate between the vectors and the scalars3. Calculate the vectors sum, and vectors product.4. Define the concepts of force and gravity.



5. Apply Newton's laws of motion to calculate the position, velocity and acceleration.
6. Differentiate between Work, Energy, and power.

In addition to these items, the students should gain practical skills through performing some experimental class.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and understanding	
1.1	Define the physical quantities related to the measurement, motion in one dimension, vectors, Newton's law of motion, work and energy.	K1
1.2	Describe the concepts and physical laws related to the measurement, motion in one dimension, vectors, Newton's law of motion, work and energy using the mathematical formula.	K2
1.3		
2	Skills:	
2.1	Apply physics laws to calculate physical quantities related to the measurement, motion in one dimension, vectors, Newton's law of motion, work and energy.	S1
2.2	Explain the procedures for scientific theoretical treatments as well as empirical observations.	S2
2.3		
3	Values:	
3.1	Work effectively responsibly in team work	V2
3.2		

C. Course Content

No	List of Topics	Contact Hours
1	Measurement <ul style="list-style-type: none"> ● Measuring Things ● The International System of Units ● Changing Units ● Length ● Significant Figures and Decimal Places ● Time ● Mass 	5
2	Motion Along a Straight Line <ul style="list-style-type: none"> ● Position, Displacement, and Average Velocity ● Motion ● Position and Displacement ● Average Velocity and Average Speed ● Instantaneous Velocity and Speed ● Acceleration ● Constant Acceleration: A Special Case ● Another Look at Constant Acceleration ● Free-Fall Acceleration ● Graphical Integration in Motion Analysis 	5
3	Vectors <ul style="list-style-type: none"> ● Vectors and Their Components ● Vectors and Scalars ● Adding Vectors Geometrically ● Components of Vectors 	5



	<ul style="list-style-type: none"> ● Unit Vectors Adding Vectors by Components ● Vectors and the Laws of Physics ● Multiplying Vectors 	
4	Motion in Two and Three Dimensions <ul style="list-style-type: none"> ● Position and Displacement ● Position and Displacement ● Average Velocity and Instantaneous Velocity ● Average Acceleration and Instantaneous Acceleration ● Projectile Motion ● Uniform Circular Motion ● Relative Motion in One Dimension ● Relative Motion in Two Dimensions 	5
5	Force and Motion-I <ul style="list-style-type: none"> ● Newtonian Mechanics ● Newton's First Law ● Force ● Mass ● Newton's Second Law ● Some Particular Forces ● Newton's Third Law ● Applying Newton's Laws 	5
6	Force and Motion-II <ul style="list-style-type: none"> ● Friction ● Properties of Friction ● The Drag Force and Terminal Speed ● Uniform Circular Motion Forces 	5
	Practical Part: <ul style="list-style-type: none"> ● Students will conduct various experiments in the practical part of the course. Each student will perform the experiment, collect data, extract result, and prepare a written report every week. 	10
Total		40

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	Knowledge and Understanding		
1.1	Define the physical quantities related to the course.	1. Demonstrating the basic principles through lectures. 2. Discussing phenomena with illustrating pictures and diagrams. 3. Lecturing method: <ul style="list-style-type: none"> ● Board, Power point. ● Discussions ● Brain storming ● Start each chapter by general idea and the benefit of it. 4. Do some experimental in the Laboratory	1. Solve some examples during the lecture. 2. Discussions during the lectures 3. Exams: <ol style="list-style-type: none"> Quizzes Midterm exams Final exam. Practical exams.
1.2	Describe the concepts and physical laws related to the course using the mathematical formula.		
1.3			



Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.0	Skills		
2.1	Apply physics laws to calculate physical quantities related to the course.	1. Solve some problems in physics during lectures. 2. Following some proofs during lectures. 3. Encourage students to participate in solving problems.	1. Solve some examples during the lecture. 2. Discussions during the lectures 3. Exams: a) Quizzes b) Midterm exams c) Final exam. d) Practical exams.
2.2	Explain the procedures for scientific theoretical treatments as well as empirical observations.		
2.3			
3.0	Values		
3.1	Work effectively responsibly in teamwork	<ul style="list-style-type: none"> • Give students tasks of duties. • Organize the students as a small group in the lab. 	<ul style="list-style-type: none"> • Evaluate the scientific reports. • Discussing the reports with each teamwork. • Evaluate the efforts of each student in preparing the report.
3.2			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midterm Exam	7 th	20 %
2	HomeWorks & Quizzes	All weeks	10 %
3	Lab. Reports and Exam	End of the semester	20 %
4	Final Exam	End of the semester	50%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Each student will be supervised by academic adviser in Physics Department and the time table for academic advice were given to the student each semester. (4 hrs per week)

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	Halliday & Resnick, Jearl Walker, "Fundamentals of Physics" 10th Edition (2018)
Essential References Materials	Physics for Scientists & Engineers with Modern Physics 4th Edition by Douglas Giancoli, 4 th Edition (2014).
Electronic Materials	<ol style="list-style-type: none"> 1. Physics is Beautiful Free, interactive physics lessons 2. Khan Academy Physics Physics videos 3. The Feynman Lectures on Physics 4. PhET Simulations Online physics simulations



Other Learning Materials	
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2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs etc.)	<ul style="list-style-type: none"> • Classroom • Laboratory • Library
Technology Resources (AV, data show, Smart Board, software, etc.)	<ul style="list-style-type: none"> • Data show • Black Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching Strategies	Students	Questionnaire
Effectiveness of student assessment	Instructor	Exams
Extent of achievement of course learning outcomes	Instructor	Course report
Quality of learning resources	Instructor	Course report

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	
Reference No.	
Date	

